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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,812	02/08/2001	Sudipta K. Ray	END920010002US1	5588

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EXAMINER

NGUYEN, HA T

ART UNIT PAPER NUMBER

2812

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action	Application No. 09/779,812	Applicant(s) RAY ET AL.	
	Examiner Ha T. Nguyen	Art Unit 2812	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 10 November 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
- ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____.

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See attached.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1-10 and 12-36.

Claim(s) withdrawn from consideration: _____.

8. ☐ The drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____

Response to Applicants' arguments

Applicants' arguments regarding the rejections under 35 U.S.C. 103(a), as stated in the Office Action mailed Sept. 9, 2003 have been fully considered but is not deemed persuasive for at least the following reasons.

Applicants argued that Yamamoto et al. (EP 0544915 A1, hereinafter "Yamamoto") does not teach or suggest that the solder member 56 is lead free because it discloses a high temperature solder containing 85% by weight or more of lead. It is true that Yamamoto mainly discloses high temperature solder having high heat resistant, but the three examples given are In-Pb, Pb-Sb, and Sn-Sb, it is well known in the art that Sn and Pb are the most common main components of a solder (for example: regular solder (60Sn/40Pb)). When present in a solder, Pb normally has a high content, as shown in the first two examples. In the second example, Pb-Sb, Pb and Sb substantially constitute the second solder, but in the case of Sn-Sb, Pb is replaced by Sn, as main material forming the solder, this implies that the third solder does not have Pb. Therefore, Yamamoto does teach a lead free solder.

Applicants also argued Yamamoto discloses "containing" which does not satisfied the more limiting language of "consisting essentially of" of the claims. The examiner disagreed, note that this is a 103 not a 102 rejection, and it has been shown that in the case where the claimed range "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists (See MPEP 2144.05). Besides the use of "consists essentially" allows for the inclusion of additional materials that do not materially affect the basic and novel characteristics. In Yamamoto the solder is Sn-Sb, this implies that any additional material included in the Sn-Sb solder would not materially affect the basic and novel characteristics of the Sn-Sb. Applicants also argued that it is not possible to deduce that "any added material" would not change the basic and novel characteristics of the solder member consisting essentially of a tin-antimony alloy. The examiner disagreed, the basic characteristic (functions as a solder) and the novel characteristic (lead free) of the disclosed Sn-Sb solder are not effected by additions of other materials. "Applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention". Besides, "For the purposes

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of searching for and applying prior art under 35 U.S.C. 102 and 103, absent a clear indication in the specification or claims of what the basic and novel characteristics actually are, "consisting essentially of" will be construed as equivalent to "comprising" (see MPEP 2111.03). The language "consisting essentially" was not even used in the specification which could not possibly show what should be excluded from the Sn-Sb solder. Applicants does not point out anywhere in the instant Specification the identification of what would considered to influence the novel characteristics of the invention for "consisting essentially" but instead used the examiner's arguments to argue that applicants have satisfied the "burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention", this is not deemed persuasive because by only arguing and not pointing to the specific location in the specification, applicants imply that no such proof exist in applicants' specification.

Applicants argued that Yamamoto does not teach the substrate includes a semiconductor chip, because on page 7, lines 10-17, Yamamoto only disclose a semiconductor element which can be no more than silicon regions. The examiner disagreed, even though a semiconductor element in general can be silicon regions, it can also be a semiconductor chip, as shown in Fig. 3, the semiconductor element 14 is bonded to wiring 42 in a substrate by a Au wire, wire boding is commonly used to bond a chip to a substrate, especially when the substrate is a mother board (see page 5, first full paragraphe). Therefore, at least Yamamoto does imply a semiconductor chip.

Applicants argued that the solder member is not a solder ball. The examiner disagreed, it is true that Yamamoto discloses expressly that after the projections 56 are formed on the metallization layer, they have a spherical or hemispherical shape, and does not clearly indicate that the solder member is a solder ball, however, because the projections are formed from solder paste using screen printing or a dispenser, in the case the paste of low viscosity is dispensed, the resulting solder more or less has the shape of a ball. Besides, ball shaped solder is well known in the art.

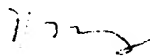
Therefore Yamamoto or Yamamoto in combination with the applied references have made obvious the limitations of claims 1-10 and 12-36. The rejections of the claims are proper and should be sustained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha Nguyen whose telephone number is (703) 308-2706 , after Feb. 3, 2004, the new phone number will be (703) 272-1678. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM, except the first Friday of each bi-week. The telephone number for Wednesday is (703) 560-0528.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Neibling, can be reached on (703) 308-3325. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Ha Nguyen
Primary Examiner
12- 4- 03